$f(x)$ belongs to $M(\phi, p)$ only if $\|f\|_M$ is finite where

$$\|f\|_M = \underset{e}{\text{l.u.b.}} \left\{ \int_e |f(x)|^p dx \Big/ \int_0^{me} \phi(x) dx \right\}^{1/p},$$

e ranging over all measurable subsets of $(0 \leqq x \leqq 1)$ for which $me > 0$, where me is the measure of e. Many properties are established for these spaces. The chapter concludes with a discussion of Hausdorff summability.

Chapter IV presents the quite difficult theory of the behavior of Bernstein polynomials in the complex domain. The results here are too complicated to admit simple description or illustration.

The exposition of the theory of Bernstein polynomials which this volume contains is quite complete. In collecting together this material, much of it from widely scattered and not easily available sources, the author has performed a valuable service.

I. I. HIRSCHMAN, JR.

An introduction to abstract harmonic analysis. By L. H. Loomis. New York, van Nostrand, 1953. 10+190 pp. $5.00.

Abstract harmonic analysis is a branch of mathematics based on the concept of the Fourier-Lebesgue integral transform on the real line, replacing that line by a locally compact topological group G, and the functions $e^{i\lambda x}$ by functions arising in representations of G (e.g. characters). The appeal of this rather new and growing doctrine is largely derived from its providing a field of application for concepts and techniques (in point set topology, abstract integration, linear spaces, operators in Hilbert space, and so forth) which had not yet found applications commensurate with their purely aesthetic value.

In any case, this doctrine provides an eagerly desired framework on which may be fastened, for contemplative or expository purposes, many of the more striking ideas of spectral theory and functional analysis. The structural members of this framework are more or less purely algebraic concepts from the theory of groups and their representations, algebras and their ideal theory.

The present work (an outgrowth of courses given at Harvard by G. W. Mackey and later the author), in tacit agreement with this point of view, is built around one of the simplest and yet most valuable topologico-algebraic concepts: the commutative Banach algebra.

The first chapter contains point set theoretic preliminaries, topological products of compact spaces, and Stone's generalization of